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THE CONTROL OF TUBERCULOSIS.

A PAPER READ BEFORE THE

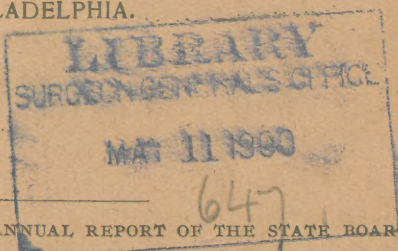
Ninth State Sanitary Convention of Pennsylvania

AT WILLIAMSPORT, MAY, 1896,

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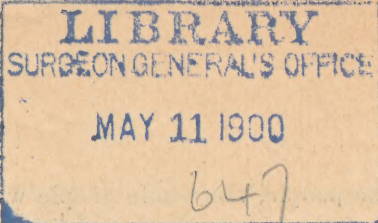
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THE CONTROL OF TUBERCULOSIS.

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Government exists for the protection of the individual in those matters in which for the general good he cannot be permitted to protect himself. When immediate danger threatens, the individual may act, but for all remote dangers the government must intervene. The reason for this is self evident. If the individual were allowed to protect himself, there would be continuous warfare, and the weak would ever succumb to the strong.

So jealous has the law always been of human life, that for every danger that has arisen along new avenues of human activity, a new safe-guard has been built up. Our statute books are filled with laws protecting life and limb against accident in every walk of life and under every possible circumstance. The railroad company, the manufacturer, the merchant—in short, every employer, and indeed, the government itself, is bound to give every possible protection, and if they do not, they are mulcted in damages for loss of life or injury to limb. Even in providing for the pleasures and for the sustenance of others, we are bound by the law to protect them against injury to life, limb or health. In fact, no injury can come to a man through the application of physical force or through the taking in of deleterious substances into the system in the form of food, drink, gases or medicines against which the law has not at least attempted to set up some barrier; and yet, strange to say, almost nothing has been done to protect man against disease.

The reason for this is that governments are not yet adjusted to the newly discovered knowledge about disease. Our statute books still tacitly ascribe disease to the direct interference of an angry Providence, instead of looking upon it as a physical phenomenon subject to the control of man. We have, as yet, no adequate machinery by which legal protection can be given to man against the microscopic foes in the organic world which have been brought within range of our vision and knowledge by the modern science of microscopy and bacteriology. It takes time to create such machinery, and before it can be done in our country, where govern-

ment is by the people, the whole people will have to be educated to the new way of thinking. Not only will the public mind have to be enlightened about the cause of disease, but a public sentiment will have to be created in favor of subjecting private rights to public interest, where the suppression of disease requires it, and of expending public money with sufficient liberality to accomplish the end aimed at. When the subject of prevention of diseases has once properly taken hold of the public mind, and the people have thoroughly grasped the full meaning of its theme, in the avoidance of suffering and expense, by the stamping out of such diseases as consumption, diphtheria, scarlet fever, measles, typhoid fever, whooping cough and pneumonia, there will be no difficulty in establishing a department of health, with the necessary powers and resources to accomplish the end for which it is created and free from the shackles of political slavery. It is, therefore, highly proper that an active spirited campaign of enlightenment be carried on, and that from the greatest to the humblest among us every one be made familiar with modern views about disease and how it can be controlled.

Of all diseases, the one about which we know most at the present day, from an etiological point of view, at least, is tuberculosis. From being the disease hidden in the deepest darkness, it has been brought out into the brightest light. In fact, we have now so definite a knowledge about it that it is as completely within our power as the wild beasts of the forest and the vermin of our household. Wild animals, dangerous to man, have been exterminated from the abodes of civilization, and when rats, mice, bugs or vermin of any kind infest our houses, we know how to rid ourselves of them. Science has given us the same power over the great white plague of consumption.

Consumption is produced by a little bit of organic life, which, although only visible under the higher power of the microscope, has, nevertheless, an individuality as perfect and unalterable as has the largest animal. This little member of the invisible plant world—for it is a vegetable and not an animal parasite—has existed since the earliest records of medical knowledge, and during all that time, as is evident from the recorded descriptions of the disease which it produces, has maintained its identity through myriads of generations. It has existed during all that time, and continues to exist under definite environments, requiring a certain soil for its development, a certain temperature for its prosperity, and certain cycles of organic change for its propagation. These have all been unwittingly furnished it by the human family since the days of Hippocrates, at least, and probably since the dawn of man's day upon earth, although at any time they could have been withdrawn, as

they have been by certain races and peoples, had man possessed the knowledge necessary to enable him to do it.

The microscope and the modern laboratory have enabled man to look into the hitherto unknown microscopic world and to carefully study the habits of life of this vexatious little organism, to see what it needs for its maintenance, how it gets it, why man has served so well as its host, how it can be staved out, how it can be destroyed, in short, how it can be stamped out of the world. This scientific detective work has been simpler than one would suppose. The clue to how to do it came with Koch's discovery of how to stain a microscopic organism. The scientific world was practically unanimous in its opinion that an organism existed which was the primary cause of tuberculosis. But in vain the scientist peered through his microscope; he could see nothing to which he could ascribe life or powers such as must be possessed by an organic substance capable of producing the symptoms of tuberculosis. The trouble was that he was looking right through the organism, for it was transparent. Finally, however, the genius arose who could master this difficulty, and Koch made his celebrated discovery by which he could stain these little bits of organism and make them visible. With this discovery all became easy. Being able to see the germ which produced tuberculosis it was easy to identify it, study its habits, in short, learn all about it. This has been done, and we now have even a more complete knowledge of the habits of life and the necessary environments of the tubercle bacillus than we have of many of the much larger representatives of the organic world.

The knowledge that has been gained about tuberculosis in the laboratory has been supplemented by a careful study of the disease at the bedside and in history with so striking a parallel in the logical conclusions that the truth is made to stand out all the more prominently thereby. Close observation and patient research made it possible to trace nearly every case of the disease to its source of infection, and historical study has shown its spread from country to country, and the practicability of stamping it out by appropriate preventive efforts. Family, individual and race predisposition to the disease as revealed to the clinician, the enhancing and restraining influence of different climates upon the development of the disease, the predisposition to the disease growing out of want, depression, grief, etc., and the tendency of the spread of the disease along the lines of civilization, all fit in exactly with the knowledge that has been gained in the laboratory about the life-history of the tubercle bacillus. Indeed, every scintilla of knowledge, from whatever source derived, has helped to blazen forth the great truth that consumption is a preventable disease, and only awaits intelligent effort to be stamped out of civilization.

What is this intelligent effort? First: The civilized world must be educated to the new doctrine. Every man, woman and child must be made familiar with the fact that consumption is always contracted by contagion, and cannot be contracted in any other way. The old idea that consumption comes through a cold must be done away with, because it stands in the way of truth and leads to mischief. As long as people stick to this old error, they cannot grasp the truth, and they, to a certain degree, are led to predispose themselves to consumption by dreading and avoiding fresh air and the hardening influences of out-door life. The idea that cold leads to consumption has done more in civilized life than any other cause to prepare people for the germs of the disease.

Secondly: It must be made known to every one that the contagion of consumption resides in and is confined to the matter given off by a person suffering from some form of tuberculosis, this matter being given off either as spit or discharges from a running sore or from the bowels or kidneys. It is through this matter that in every day practical life nearly all new cases of tuberculosis are produced. The bacilli, given off in this matter, from the old host, find their way into a new host either by getting into the blood through the alimentary canal with the food, or by finding their way into the lymphatic system through the lungs, being inhaled with dust and absorbed by the bronchial lymphatics. Nine-tenths, and possibly ninety-nine-hundredths of all cases of consumption are contracted in this way. The only other way in which the disease can be contracted is by the use as food of the meat or milk products of animals suffering from the disease. In practical life, however, this is not a frequent method of getting it, for the reason that cooking destroys the germs in meat and milk of tuberculous animals, and it is not likely to be contaminated. Although I have, for years, been looking for such cases, I have not found half-a-dozen well-authenticated cases in either my own experience or in literature, which I had reason to believe were contracted by drinking tuberculous milk. And these clinical observations are entirely in harmony with laboratory experiments, for although a few bacteriologists claim to have found tubercle bacilli in milk, the majority, and, by all odds, the most reliable, have not found them except in such cases as had the udder involved with tuberculosis disease.

Besides education, there must, however, be interference on the part of the Government. And in what should this interference consist? Studying the question from all points of view, and under the soft light of Christian charity, the most far-reaching and, at the same time, the most humane step that can be taken is the establishment of well-equipped hospitals for the treatment of those suffering from the disease—hospitals in the mountains for those in the incip-

ient stage of the disease, and hospitals in or near large cities for those far advanced in the disease. This one step, if taken on a large enough scale, would promptly stamp out tuberculosis. In England, where private charity has for half a century prompted the establishment of large hospitals for consumption, the disease is rapidly disappearing. The method by which removal of the patient to a hospital prevents the spread of the disease is easily understood. A case of consumption may last from six weeks to ten years, during all of which time the home and environment of the consumptive, unless certain precautions are taken, become centres of infection, and all who are continuously exposed to those centres, such as members of his family, business or occupation associates and friends, are liable to contract the disease. But if the case is removed to a hospital before the breaking down which is the beginning of the infectious period, all of this danger of infecting others is avoided. The influence of such a single preventative effort is much more far-reaching than appears at first sight; for not only is the immediate infection prevented, but also those that would be propagated by subsequent cases.

As to any hardship involved in sending consumptives to hospitals, a bugbear which is being conjured up by certain well-meaning individuals who have very little practical knowledge of the subject, there can be none in practice. A well-equipped hospital in the mountains would hold out sufficient inducement in possible cure to attract all cases of incipient tuberculosis. It would not be so much a question how to force people to go to it as how to supply accommodations for those who would apply for admission. For the advanced cases, hospital treatment is so imperative for the very poor that they beg for admission into hospitals. I am constantly in contact with the consumptive poor, and I know that the majority of them will cheerfully go to a hospital if the opportunity is given them. At the present time they are denied admission to nearly all hospitals.

As yet, very little has been done by the Government in this country in the way of supplying hospital accommodations for the consumptive poor. Private charity has led the way, and various movements are on foot to give practical aid to this sadly afflicted class of sufferers, and some of them promise well for the future. Every effort should, however, be made to induce the State and City Governments to at once establish well-equipped hospitals for the consumptive poor. A fair division of the work would be for cities to establish hospitals for advanced cases, and the State hospitals for incipient cases. The Pennsylvania Society for the Prevention of Tuberculosis has had a bill with this end in view before the State Legislature for years, and is now urging Philadelphia City Coun-

cils to establish and equip a municipal hospital for advanced cases. In this effort it seeks, and should obtain, the co-operation of all individuals and organizations that have the public welfare at heart.

Next to the establishment of hospitals for the treatment of the consumptive poor the most important step for the Government to take is the registration of all cases of tuberculosis, and the proper supervision and disinfection of the environments of the consumptive. Could every case of tuberculosis be removed to a hospital, nothing more would be necessary, as the centres of infection would be removed from the community. Close confinement would not be necessary, as the education in methods of prevention which could be given in a hospital would make the patients innocuous to the public. It will, however, for a long time to come, be practically impossible to provide hospital accommodations for all cases of consumption. Until this can be done, it is the duty of the Government to give such other protection to the public as lies within its power. By registration and proper supervision and disinfection a good deal of protection could be given with the existing machinery of the law at a trifling expense. Physicians should be required to report every case of tuberculosis which has progressed to the stage of breaking down. When this stage of the disease has been reached, a diagnosis can be made with absolute certainty by a microscopic examination of the broken down tissue, so that there can be no objection to registration on the score of difficulty of diagnosis or unnecessary hardship to the patient. Prior to the stage of breaking down, there is no danger of communicating the disease to others.

When a case has been registered, if it is a person unable by reason of ignorance or poverty to protect the public, it should be visited by the health inspector, and supplied by him with the necessary germicides and paraphernalia for thorough and immediate sterilization of all tubercular matter given off, and instructed in their use. It has been said that the physician can do all this, and that a visit from the health inspector would be espionage and invasion of private rights. But the physician does not do it, sometimes because he does not know enough about the technique, sometimes because he has not the time, and very often because there is no physician in regular attendance. Among the very poor, consumption is looked upon as necessarily a fatal disease, and when it has once passed a certain stage in its progress, the family calmly awaits death, and the physician, usually a dispensary doctor, is called in at the end to avoid a coroner's inquest. Moreover, it is not proper to place upon the physician's shoulders duties which belong to the Government. As to espionage the word cannot properly be applied to such supervision of the consumptive as is necessary for the protection of the public. The health officer need not go where, in Christian charity,

he is not needed. The wealthy are abundantly able to take care of themselves. The poor are not, and it will be no hardship to them or interference with their private rights to help them to protect those near and dear to them against so fatal a disease.

In addition to education of the public, establishing hospitals for the treatment of the consumptive poor, registration of tuberculosis and supervision and disinfection of the environments of consumptives, much else could be done for the control of tuberculosis, but until these measures have all been successfully inaugurated, it is vain to speculate about others. For the present, every effort should be made to influence State and city government to take action along these lines.

As regards government control of tuberculosis among cattle, as a measure for stamping out the disease in the human family, I fear that it is much over-rated. The government of Pennsylvania has already spent much money in this direction, and from the point of view of an economical agricultural measure I think quite properly but we must not permit ourselves to be lulled into inactivity by great expectations of its accomplishing much in the way of stamping out the disease among men. It moreover looks like a hopeless task to me to try to stamp out tuberculosis among domestic animals so long as nothing is being done to prevent the spread of the disease among human beings. From my own observations and from my readings I am convinced that domestic animals are rarely a source of infection to human beings, but that man is frequently the means of conveying the disease to animals. Too much has been said in public print during recent years about the danger of contracting tuberculosis by drinking milk, and unnecessary alarm has been created and injury done by setting up a prejudice against the use of one of the most valuable articles of food. Until it can be shown that tuberculosis is contracted in this way in practical every day life, the mere theoretical possibility of its being so contracted must weigh very little. As yet, no one has been able to point to a respectable number of cases that have been taken in this way. On the other hand, there are very few cases in human beings which cannot be traced directly to their source of infection.



